

Notice of Allowability

Application No.

10/028,448

Examiner

Carramah J. Quiett

Applicant(s)

SUDA, YASUO

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 05/17/2007.
2. ☒ The allowed claim(s) is/are 10, 11 and 34-37.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

N. VU

NGOC-YEN VU
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/17/2007 has been entered. Claims 10-11 and 34-37 are pending.

Allowable Subject Matter

2. **Claims 10-11 and 34-37** are allowed.
3. The following is an examiner's statement of reasons for allowance:

Claim 10 is allowed because the prior art does not teach or fairly suggest an image sensing apparatus comprising:

a single solid-state image sensing element having matrix-like arranged first to fourth image sensing areas with substantially the same size all of the first to fourth image sensing areas being arranged on a single plane, *green color filters being arranged on the first and fourth image sensing areas which are arrayed on one diagonal line of the matrix, and red and blue color filters being arranged on the second and third image sensing areas which are arrayed on the other diagonal line of the matrix;*

a photographing optical system that respectively forms first to fourth object images on the first to fourth image sensing areas; and

a signal processing device that processes an output signal from said image sensing element,

a single solid-state image sensing element having image sensing areas with substantially the same size, on a single plane

wherein each of the first and fourth image sensing areas has a matrix of a plurality of pixels arranged at a pitch a in the horizontal direction and a pitch b in the vertical direction on a light-receiving surface, the first and fourth image sensing areas have a positional relationship in which the first and fourth image sensing areas are separated $axhxc$ in the horizontal direction horizontally and bxc in the vertical direction (where h is a positive integer and c is constant), said image sensing element forms first and fourth images which are formed to have an identical spectral distribution and have substantially the same fields of view, and said signal processing device corrects a misregistration of the first and fourth images based on a relationship of the pixels arrayed in a slanting direction, and generates a composite image signal based on the first and fourth images.

Claims 11 and 34-37 are allowed because they depend upon claim 10.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Suda (2006/0001765 A1)	An image sensing apparatus, which can satisfactorily correct misregistration.
Suda (2002/0089596 A1)	Image sensing units having different spectral transmittance characteristics.
Sonoda et al. (2002/0113888 A1)	An image pickup device wherein the centers of the pixel area and substrate substantially coincide with each other.
Olsen et al. (7,199,348 B2)	A digital camera system employing arrays with the Bayer pattern (i.e. red/green/blue/green).
Itano et al. (7,139,028 B2)	Image pickup apparatus with a plurality of sensing areas.
Schroeder et al. (7,123,298 B2)	Color image sensors each with a different set of color filters.
Yoneda et al. (6,952,228 B2)	Image pickup apparatus with a plurality of sensing areas.
Bawolek et al. (6,771,314 B1)	Color image sensors each corresponding to a spectrum of the wavelength.
Tangen et al. (6,765,617 B1)	An optoelectronic camera comprises an objective system formed by a number of optical active structures
Bayer (3,971,065)	Color imaging array.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carramah J. Quiett whose telephone number is (571) 272-7316. The examiner can normally be reached on 8:00-5:00 M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NgocYen Vu can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CJQ
June 20, 2007



NGOC-YEN VU
SUPERVISORY PATENT EXAMINER